

IN THE CLAIMS

1-15 (Withdrawn and Cancelled)

16. (Currently Amended) A diamond tool having a shank and a plurality of abrasives attached thereto,

wherein a plurality of concave portions are formed in a surface of the shank and a first portion of the plurality of abrasives are bonded into the concave portions to form a first abrasive layer, and wherein a second portion of the plurality of abrasives are formed over the first portion of the plurality of abrasives bonded into the concave portions and onto a top surface of the shank to form a second abrasive layer overlying the first abrasive layer, thereby forming multiple abrasive layers,

wherein a cross-section of the concave portion taken along a direction perpendicular to the surface of the shank includes a semicircular shape, a semi-elliptic shape, a U-shape, a V-shape, or a wave shape.

17. (Currently Amended) The diamond tool as claimed in claim 16, wherein the concave portion includes a dimple type one and a groove type one a ratio (s/w) of the spacing (s) between the concave portions to the width (w) of the concave portion is within a range of 0.2 to 0.8.

18. (Currently Amended) The diamond tool as claimed in claim 16, wherein a cross section of the concave portion taken along a direction perpendicular to the surface of the shank includes a semicircular shape, a semi-elliptic shape, a U-shape, a V-shape, or a wavy shape a ratio (w/a) of the width (w) of the concave portion to the maximum diameter (a) of the abrasive is greater than 0.25.

19. (Currently Amended) A diamond tool having a shank and a plurality of abrasives attached thereto,

wherein a plurality of concave portions are formed in a surface of the shank and a first portion of the plurality of abrasives are bonded into the concave portions to form a first abrasive layer,

wherein a second portion of the plurality of abrasives are formed over the first portion of the plurality of abrasives bonded into the concave portions and onto a top surface of the shank to form a second abrasive layer overlying the first abrasive layer, thereby forming multiple abrasive layers, and

wherein a wall between the concave portions has a rounded upper end edge.

20. (Currently amended) The diamond tool as claimed in claim 16, wherein the concave portion includes a through-hole type concave portion.

21. (Currently amended) The diamond tool as claimed in claim 16, wherein the plurality of concave portion comprises portions comprise a groove type groove concave portion formed in a main cutting face of the shank, and a through-hole type concave portion formed in a sub-cutting face of the shank.

22. (Currently Amended) A diamond tool having a shank and a plurality of abrasives attached thereto,

wherein a plurality of concave portions are formed in a surface of the shank and a first portion of the plurality of abrasives are bonded into the concave portions to form a first abrasive layer,

wherein a second portion of the plurality of abrasives are formed over the first portion of the plurality of abrasives bonded into the concave portions and onto a top surface of the shank to form a second abrasive layer overlying the first abrasive layer, thereby forming multiple abrasive layers, and

wherein a ratio (s/w) of the spacing (s) between the concave portions to the width (w) of the concave portion is within a range of 0.2 to 0.8.

23. (Currently Amended) A diamond tool having a shank and a plurality of abrasives attached thereto,

wherein a plurality of concave portions are formed in a surface of the shank and a first portion of the plurality of abrasives are bonded into the concave portions to form a first abrasive layer,

wherein a second portion of the plurality of abrasives are formed over the first portion of the plurality of abrasives bonded into the concave portions and onto a top surface of the shank to form a second abrasive layer overlying the first abrasive layer, thereby forming multiple abrasive layers, and

wherein a ratio (w/a) of the width (w) of the concave portion to the maximum diameter (a) of the abrasive is greater than 0.25.

24. (Currently Amended) A diamond tool having a shank and a plurality of abrasives attached thereto,

wherein a plurality of concave portions are formed in a surface of the shank and a first portion of the plurality of abrasives are bonded into the concave portions to form a first abrasive layer,

wherein a second portion of the plurality of abrasives are formed over the first portion of the plurality of abrasives bonded into the concave portions and onto a top surface of the shank to form a second abrasive layer overlying the first abrasive layer, thereby forming multiple abrasive layers, and

wherein a ratio (d/a) of the depth (d) of the concave portion to the maximum diameter (a) of the abrasive is greater than 0.25.

25. (Cancelled)

26. (Currently Amended) A diamond tool having a shank and a plurality of abrasives attached thereto,

wherein a plurality of concave portions are formed in a surface of the shank and a first portion of the plurality of abrasives are bonded into the concave portions to form a first abrasive layer,

wherein a second portion of the plurality of abrasives are formed over the first portion of the plurality of abrasives bonded into the concave portions and onto a top surface of the shank to form a second abrasive layer overlying the first abrasive layer, thereby forming multiple abrasive layers, and

wherein a height of the second portion of the plurality of abrasives is varied.

27. (Cancelled)

28. (Original) The diamond tool as claimed in claim 16, wherein the diamond tool includes a saw, a core drill, a cutter, a saw blade, a wire saw, a polishing cup, a profiler, an end mill, a straight wheel, an ID wheel, a rotary dresser, and an edge grinding wheel.

29. (Previous presented) The diamond tool as claimed in claim 16, wherein the abrasive includes synthetic and natural diamond, cubic boron nitride(cBN), silicon carbide, alumina, and a mixture of at least two thereof.

30-43. (Canceled)

44. (New) The diamond tool as claimed in claim 22, wherein the concave portion includes a dimple or a groove.

45. (New) The diamond tool as claimed in claim 22, wherein the concave portion includes a through-hole concave portion.

46. (New) The diamond tool as claimed in claim 22, wherein the plurality of concave portions comprise a groove concave portion formed in a main cutting face of the shank, and a through-hole concave portion formed in a sub-cutting face of the shank.

47. (New) The diamond tool as claimed in claim 23, wherein the concave portion includes a dimple or a groove.

48. (New) The diamond tool as claimed in claim 23, wherein the concave portion includes a through-hole concave portion.

49. (New) The diamond tool as claimed in claim 24, wherein the concave portion includes a dimple or a groove.

50. (New) The diamond tool as claimed in claim 24, wherein the concave portion includes a through-hole concave portion.